House Bill2998 Oregon Soil Health Initiative: Feb 18, 2023

I am a Bend, OR resident, member of the Sierra Club Juniper Chapter, and core team member of the Sierra Club National Food and Ag Grassroots network. In partnership with many other NGOs and farmers associations we have been focused on the 2023 farm bill, and provided Members of Congress with testimony and support to explain the urgent need to change agricultural practices.

We speak of the 'living soil', because a teaspoon of soil contains more microbes than there are people on the planet. Soil supports organic life on Earth, it regulates the water cycles, and it stabilizes our climate. It holds 2-3x as much carbon as there is in the atmosphere. Healthy soil powers photosynthesis, the process where plants sequester nitrogen and carbon out of the atmosphere into the soil.

The use of fossil fuel based chemical fertilizers and pesticides damages the soil microbiome, which dries out the soil and reduces its ability to absorb and hold water. Conversely, for every 1% increase in soil organic matter (SOM) it can hold an additional 20,000 gls of water per acre and also drastically increase absorption rates.

Considering that the organic carbon content of healthy soil can range from 2% to 10% or more by weight, these are significant amounts of water stored in soil. Conversely, dried out soils disrupt what is referred to as the 'Small Water Cycle'.

A "small water cycle," a vertical generator of mild, local weather, operates within each watershed. The critical term here is vertical. Small water cycles need to recycle water within the watershed in order to maintain the local ecology, as moist environments attract more moisture and dry environments repel it. Humans violate this law of nature by depleting the capacity of soil to hold water. Each turn in the affected water cycle slightly decreases the amount of water that cycles within it, causing prolonged periods of draught followed by intense precipitation events.

Chemically intensive agriculture that damages the SOM also damages the natural environment, decreasing biodiversity, pollinators, wildlife, fish, insects, and a diversity of plants.

To reverse this process is referred to as 'Regenerative Agriculture'. Some key principles of regenerative agriculture include:

1. Building healthy soil: Regenerative agriculture emphasizes the importance of building and maintaining healthy soil, which can help to improve soil fertility, increase water-holding capacity, and sequester carbon.
2. Minimizing tillage: Regenerative agriculture often involves reducing or eliminating tillage, which can help to preserve soil structure, increase water infiltration, and reduce soil erosion.

3. Using cover crops: Cover crops can help to improve soil health, reduce erosion, and provide habitat for beneficial insects and wildlife.
4. Promoting biodiversity: Regenerative agriculture emphasizes the importance of promoting biodiversity in agricultural ecosystems, which can help to improve soil health, reduce pest and disease pressure, and support beneficial insects and wildlife.
5. Integrating livestock: Livestock can play an important role in regenerative agriculture by helping to cycle nutrients, control weeds and pests, and build soil fertility.

Farmers who are prepared to change practices focused on soil health need to invest in equipment, change types of crops and seeds appropriate for their bioregion, and potentially deal with a temporary reduction in yields. They also need to find receptive markets prepared to accommodate different types of crops.

The Federal Government is investing some $19.5 billion from the Inflation Reduction Act into the Title II programs of the Farm Bill, designed to assist farmers to transition into regenerative practices. It is important that at State level there are corresponding support structures in place to help farmers access these funds, and to develop a supply chain that links farmers with aggregators, processors, and logistics to reach the consumer.

Secretary of Agriculture Vilsack declared: "The Inflation Reduction Act provides a once-in-a-generation investment in conservation on working lands, and we want to work with agricultural and forest landowners to invest in climate-smart practices that create value and economic opportunity for producers," said Vilsack, who spoke today at the National Association of Conservation Districts annual meeting. "We know that agriculture plays a critical role in the nation's effort to address climate change, we're using this funding to bolster our existing programs, maximize climate benefits, and foster other environmental benefits across the landscape."

I would therefore urge the committee to adopt and pass House Bill2998, Oregon Soil Health Initiative, and assure it gets resourced sufficiently to access Federal funding.

Klaus Mager